

## **COMPACT TALKING PERSONAL ENVIRONMENTAL STATUS DEVICE**

### **Related Applications**

[0001] This application claims priority to U.S. Provisional Application No. 60/390,557, filed June 21, 2002, which is expressly incorporated herein by reference.

### **Background**

[0002] Human interest in the environment has increased throughout the ages as more environmental concerns have emerged. Monitoring and informing of environmental conditions is desirable - such as to advise of temperature, humidity, wind, barometric pressure, wind-chill, UV radiation, x-ray radiation, carbon monoxide, radon gas, dust particles, and other environmental elements - so that a person may take proper precautions to optimize his or her interaction with the environment. Existing environmental sensors provide information about the environment, but are cumbersome and difficult to use.

### **Summary of the Invention**

[0003] A small printed circuit board, battery, voice synthesizer and enclosure form a device that is attachable to luggage, clothing, baggage, backpacks, briefcases and/or key chains. The user presses a button and an environmental characteristic is digitally "spoken" from the unit via voice synthesizer. The device converts an analog signal (e.g., of an environmental factor, e.g., temperature) to digital data that is acted on by microprocessor, which provides the user with the desired environmental characteristic by either touch of a button or by voice recognition. The device may include different types of (analog or digital) sensors to provide other environmental characteristics (e.g., humidity). By speaking the characteristic(s), a sight-impaired and/or elderly person can learn about information and conditions of their environment, with a touch of the button, or by automatically generating information at time intervals set by with microprocessor. In one operable example, the device is used by a camper that is concerned about freezing

temperatures; the device provides an audible alarm when the device experiences freezing conditions.

[0004] The following patents are incorporated herein by reference, for background and disclosure purposes:

4428685	October 1980	Lemelson, et al.
3453546	July 1969	Fryer
3683346	August 1972	Horton
3817105	June 1974	Luhowy
3822598	July 1974	Brothers, et al.
3870818	March 1975	Barton, et al.
3903471	September 1975	Hiraga, et al.
3922716	November 1975	Arnold, et al.
3972237	August 1976	Turner
4000489	December 1976	Bench
4125023	November 1978	Amemiya, et al.
4161880	July 1979	Prosky
4199986	April 1980	Ganslmeier, et al.
4277975	July 1981	Pinkham
4278970	July 1981	Streczyn, et al.
4308465	December 1981	Lafuze
4348650	September 1982	Tsuzuki, et al.

#### **Brief Description of the Drawings**

[0005] FIG. 1 shows front and back views of one talking personal environmental status device; and

[0006] FIG. 2 shows a block schematic of electronics of the device of FIG. 1.

#### **Detailed Description of the Talking Personal Environmental Status Device**

[0007] The talking personal environmental status device 10 of FIG. 1 and FIG. 2 contains a printed circuit board (PCB) 12, microprocessor 14, user interface (e.g., buttons) 16, voice synthesizer and/or speaker 18 (emitting sound through speaker hole 18'), enclosure 20 (optionally waterproofed), battery 22 (e.g., lithium

battery for cold weather operation), and environmental sensor 24. A hole 26 formed in enclosure 20 is useful (and optional) for attachment to a ring for to facilitate further attachment to clothing, jackets, zippers, backpacks, suitcases, handheld baggage, golf bags, sporting equipment bags, toolboxes, etc., or to facilitate placement on a hook to monitor a particular environment.

**[0008]** In operation, sensor 26 produces data indicative of the environmental characteristic to microprocessor 14 (typically through an A/D converter 28, discussed below). Microprocessor 14 processes the data and, in turn, instructs voice synthesizer 28 to emit audible sound to “speak” the environmental characteristic through its speaker. Battery 22 powers device 10.

**[0009]** In one embodiment, sensor 24 is an analog sensor (e.g., a thermocouple or thermistor) that passes its voltage data to an analog to digital converter 28 to provide microprocessor 14 with digital data to evaluate and provide voice synthesis information, with the appropriate vocabulary for the type of environment to be announced to the user of device 10. Limits may be set (e.g., temperature limits, like “freezing”) to alert the user to any condition that the various different types of sensors can sense.

**[0010]** In one embodiment, on the back of device 10, a battery access port 30 is provided, with a latch 32 to open and reinstall a new battery 22.

**[0011]** An A/D converter is not necessary if for example sensor 24 is a digital sensor. Sensor 24 may include one or more sensors to monitor: temperature, humidity, wind, barometric pressure, wind-chill, UV radiation, x-ray radiation, carbon monoxide, radon gas, dust particles, and/or other environmental characteristics.

**[0012]** Device 10 is typically small and lightweight, weighing less than 50 grams (and preferably less than 10 grams) so as to be carried around easily by a human without noticeable weight.